

Application No. 09/527,368
Amendment dated April 1, 2005
Reply to Office Action of December 1, 2004

REMARKS

Claims 1-4 and 6-32 are pending in the application; the status of the claims is as follows:

Claims 1, 6, 20, and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,926,159 to Matsuzaki et al (“Matsuzaki”), in view of U.S. Patent No. 6,075,508 to Ono et al (“Ono”).

Claims 2, 16, and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki and Ono as applied to claim 1 above, and further in view of U.S. Patent No. 6,268,840 B1 to Huang (“Huang”).

Claims 3, 4, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki and Ono as applied to claim 1 above, and further in view of U.S. Patent No. 4,728,936 to Guscott et al (“Guscott”).

Claims 7-9, 12, and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki and Ono as applied to claim 1 above, and further in view of Japanese Publication No. 8-035759 to Chikako (“Chikako”).

Claims 10 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki, Ono and Chikako as applied to claims 1 and 7 above, and further in view of U.S. Patent No. 5,726,676 to Callahan, Jr. et al (“Callahan”) and U.S. Patent No. 6,323,851 B1 to Nakanishi (“Nakanishi”).

Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki and Ono as applied to claim 1 above, and further in view of U.S. Patent No. 6,342,901 B1 to Adler et al (“Adler”).

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Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuzaki in view of Ono, and further in view of U.S. Patent No. 6,008,787 to Kondoh (“Kondoh”).

Claim 27 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki, Ono and Kondoh as applied to claim 15 above, and further in view of U.S. Patent No. 6,233,027 B1 to Unno et al (“Unno”).

Claim 28 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki, Ono and Kondoh as applied to claim 15 above, and further in view of Guscott.

Claims 18, 25, and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki in view of Unno, and further in view of Ono.

Claim 30 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki, Ono and Unno as applied to claim 18 above, and further in view of Guscott.

Claims 19, 23, and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki in view of U.S. Patent No. 6,085,047 to Taka (“Taka”).

Claim 31 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki and Taka as applied to claim 19 above, and further in view of Unno.

Claim 32 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki and Taka as applied to claim 19 above, and further in view of Guscott.

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuzaki and Ono as applied to claim 1 above, and further in view of Taka.

Claims 1, 15, 18 and 19 have been amended to further clarify the characteristics of a display with a memory effect. These changes do not introduce any new matter.

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35 U.S.C. § 103(a) Rejections

The rejection of claims 1, 6, 20, and 21 under 35 U.S.C. § 103(a), as being unpatentable over Matsuzaki in view of Ono, is respectfully traversed because, taking the references as a whole, there is no motivation to combine the references and because the combination fails to teach the elements of the subject claims.

Taken as a whole, the claims of the present application are directed to a display device in which it is not necessary to continually refresh a displayed image at a high rate (e.g., several Hertz), thereby saving power, but which is refreshed at relatively long intervals (e.g., minutes or hours) to ensure the displayed image has not degraded (e.g., by temperature changes). In stark contradistinction, all of the references of record appear to teach display devices in which the images are refreshed at a high rate. Indeed, Matsuzaki and Ono are both directed to systems to increase the update speed of a FLCD. Thus, modifying either Matsuzaki or Ono as proposed in the Office Action would change the principles of operation of the reference devices. Where the modification would change the principles of operation of the referenced device, there can be no motivation to make the modification. MPEP 2143.01. Accordingly, there can be no motivation to use the teachings of Ono to modify Matsuzaki as suggested in the Office Action.

Moreover, references may only be combined where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. MPEP 2143. It is alleged in the Office Action, that the motivation to combine Matsuzaki and Ono is “to provide an LCD that is able to keep an image on the display or screen by using memory effect, thereby using less power, and a timer, in conjunction with memory effect, that is used to update the last image on the display when the timer has counted to a predetermined value.” See page 3. It is respectfully submitted, however, that neither Matsuzaki nor Ono even mentions power savings, energy efficiency, or the like. Therefore, the references cannot provide the requisite motivation. Moreover, the other art of record in the present case also fails to provide the alleged motivation. Indeed, the only

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source for the alleged motivation appears to be applicants own disclosure. This is the hallmark of hindsight reconstruction, and is not permitted. Accordingly, it is respectfully submitted that there is no motivation to make the proposed combination of Matsuzaki and Ono.

Even assuming *arguendo* that the combination of Matsuzaki and Ono were proper, the combination still fails to teach all elements of claim 1. Specifically, claim 1 recites a liquid crystal display comprising liquid crystal with a memory effect sufficient to keep information displayed for at least a day without application of a voltage thereto. The Office Action alleges that this feature of claim 1 is taught by Matsuzaki.

Matsuzaki describes a display apparatus comprising a FLC display (FLCD) and that the FLC molecules are bistable. See column 1, lines 39-46. Specifically, Matsuzaki et al. teaches a display in which the FLC molecules are aligned in a first or second aligned state in accordance with the direction of an electric field applied to the molecules and that this aligned state is maintained after the electric field is removed.

However, Matsuzaki does not explicitly teach that the FLC is bistable to the degree that the display is capable of retaining an image for at least a day. According to the embodiments described by Matsuzaki et al., the FLCD is refreshed continually. See column 4, lines 48-50. Thus, the bistability of the FLCD appears to be merely of such a degree that a sufficient time margin is obtained in a continuous refresh driving cycle of the display screen (see column 1, lines 50-56) to accommodate the lengthy write times of an FLCD. Thus, Matsuzaki et al. does not teach that the display is capable of keeping information displayed thereon for at least a day without application of a voltage thereto.

Moreover, it is respectfully submitted that it is not an inherent feature of FLCD-type displays that they are capable of keeping information displayed thereon for at least a day without application of a voltage thereto. United States Patent 5,625,477, issued to Wu et al. on August 29, 1997, teaches that the bistability of FLCs is not stable under zero field conditions. See column 2, lines 22-23. Therefore, Matsuzaki fails to teach an LCD

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having "a display section which uses liquid crystal with a memory effect sufficient to keep information displayed for at least a day without application of a voltage thereto" as required by claim 1. Ono also fails to teach the recited feature.

Nevertheless, claim 1 has been amended to clarify the feature that the liquid crystal display devices keep information displayed on the display section by use of the memory effect of the liquid crystal, not by performing a refresh drive. This is supported by the description in page 1, lines 19-23 of the specification of the present application.

Because a display according to claim 1 is able to keep information displayed for a long time (at least a day) by use of the memory effect, it is not necessary to refresh the display at a high rate. However, it is possible that the displayed image may be degraded by an outside factor, for example, by pressure. To restore a possibly degraded image, the image is rewritten (writing currently information again) at predetermined intervals, although such rewriting is not necessary merely to keep the information displayed.

In contrast, Matsuzaki and Ono both teach a liquid crystal display in which a refresh drive is performed at a relatively high rate. Therefore, the type of liquid crystal display taught by the references does not have to contend with the possibility that a displayed image may be degraded by an outside factor during a time in which the image is not being refreshed (i.e., kept displayed without the application of a voltage). Thus, not only do the references fail to disclose the invention, they provide no motivation to make the present invention. The other cited references also fail to disclose and teach the above-described feature of amended claim 1. Therefore, claim 1 of the present application cannot be rejected as being unpatentable over Matsuzaki et al. and the other cited references.

Claims 15 recites, "display which uses liquid crystal with a memory effect capable of retaining displayed information thereon for at least one day without the application of a voltage and without refreshing the displayed information" Claim 18 recites "the display section being capable of continuing to display information thereon for about one day

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without applying a voltage thereto and without refreshing the information displayed thereon. Claim 19 recites "a display section . . . capable of displaying an image thereon for at least one day without the application of a voltage thereto and without refreshing the information displayed thereon." It is respectfully submitted, therefore, that claims 15, 18, and 19 distinguish over the combination of Matsuzaki and Ono for at least the same reasons as provided above in respect of claim 1.

Claims 2-4, 6-15, 17, and 20-32 all stand rejected under 35 U.S.C. § 103(a) as being obvious over various combinations of Matsuzaki, Ono, Huang, Guscott, Chikako, Callahan, Nakanishi, Adler, Kondoh, Unno, and Taka.

Claims 2-4, 6-15, 17, and 20-32 depend from, and therefore incorporate the limitations of, one of claims 1, 15, 18, and 19. Therefore, each of the subject claims distinguishes over the combination of Matsuzaki and Ono for at least the same reasons as applied above in respect of claim 1. It is respectfully submitted that none of the other art of record in the present case makes up for the deficiency in the teachings of Matsuzaki and Ono. Specifically, none of Huang, Guscott, Chikako, Callahan, Jr., Nakanishi, Adler, Kondoh, Unno, and Taka, taken alone or in any combination, teaches "a display section which uses liquid crystal with a memory effect capable of displaying an image thereon for at least one day without the application of a voltage thereto and without refreshing the information displayed thereon" as required by the subject claims.

In addition, claims 3, 4, and 26 recite *inter alia*: a liquid crystal device comprising a display section wherein "the display section has a detecting section which detects a contact action with a screen of the display section" and "the control section controls the driving section to write currently displayed information on the display section again when a contact action is detected by the detecting section." In other words, the control section causes an image to be refreshed in response to detecting contact with the display; which is to be distinguished from changing what is shown on the display. Guscott teaches a device including a touchpad and an LCD, in which what is shown on the LCD is changed in

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response to touching the touchpad. It is respectfully submitted that Guscott is utterly silent with regards to how or when an image on the LCD is refreshed, and therefore cannot teach refreshing the image in response to detecting contact with the display.

Moreover, claim 9 requires, *inter alia*, that the display has “a terminal through which electricity is charged in a battery from an external device” and that “the external device is a refrigerator.” It is respectfully submitted that Chikako teaches a display fitted to a refrigerator by a magnet and that the display has a battery as a power source. However, Chikako does not disclose or suggest that the battery of the display is charged with electric power supplied from an external device, that is, the refrigerator.

Accordingly, it is respectfully requested that the rejection of claims 2-4, 6-15, 17, and 20-32 under 35 U.S.C. § 103(a) as being unpatentable over various combinations of Matsuzaki, Ono, Huang, Guscott, Chikako, Callahan, Jr., Nakanishi (“Nakanishi”), Adler, Kondoh, Unno, and Taka be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

This Amendment increases the number of independent claims by 1 from 4 to 5 and increases the total number of claims by from 31 to 34, but does not present any multiple dependency claims. Accordingly, a Response Transmittal and Fee Authorization form authorizing the amount of \$350.00 to be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260 is enclosed herewith in duplicate. However, if the Response Transmittal and Fee Authorization form is missing, insufficient, or otherwise inadequate, or if a fee, other than the issue fee, is required during the pendency of this application, please charge such fee to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260.

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If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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